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10/790,517	03/01/2004	Giuseppe De Fabbrizio	2002-0355B	1063
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AT&T CORP. ROOM 2A207 ONE AT&T WAY BEDMINSTER, NJ 07921			KOVACEK, DAVID M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/790,517

Applicant(s)

DE FABBRIZIO ET AL.

Examiner

David Kovacek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☒ Claim(s) 15 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ~
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 03/01/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Specification

1. The abstract of the disclosure is objected to because it exceeds 150 words in length. Correction is required. See MPEP § 608.01(b).

2. The disclosure is objected to because of the following informalities:

1. on Page 5, reference is made to "DM" without a proper definition of this abbreviation. This abbreviation should be defined upon its earliest use.

2. on Page 6, the term, "Dialog Manager," is given as the definition of "DM." For the purposes of examination, the abbreviation, "DM," has been considered to mean "Dialog Manager" throughout the specification.

Appropriate correction is required.

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

4. **Claims 15 and 22** are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. **Claims 5 and 22**

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are identical in language to **claims 10** and **17** respectively, and therefore inherently cannot provide further limitation to the respective base claims.

5. **Claims 15** and **22** are objected to because of the following informalities:

- **Claim 15** is dependent upon base **claim 10**, but appears after **claim 13**, which is not dependent upon **claim 10**.
- **Claim 22** is dependent upon base **claim 17**, but appears after **claim 20**, which is not dependent upon **claim 17**.

A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim.

A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 1-3, 6-25, and 28-30** are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6,246,981 hereinafter referred to as Papineni.

Regarding **claim 1**, Papineni discloses a spoken dialog system having a dialog manager comprising:

- a top level flow controller that manages a process of controlling speech interaction between a spoken dialog system and a user (Col. 3, lines 34-42; Col. 6, lines 10-14); and
- a reusable subdialog that is isolated from application dependencies (Col. 6, lines 10-14; Col. 6, line 64 – Col. 7, line 05),
- wherein the top level flow controller invokes the reusable subdialog to handle a specific task associated with the speech interaction and return control to the top level flow controller after handling the specific task (Col. 6, lines 10-14; Col. 6, lines 57-58),
- wherein the reusable subdialog and the top level flow controller operate independent of their decision model (Col. 6, lines 10-14; Col. 6, lines 22-24; Col. 6, lines 40-45).

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It is noted by the examiner that though Papineni does not explicitly use the term, "top flow controller," the broadest reasonable interpretation of this by one of ordinary skill in the art at the time the invention was made would include a "means for formulating questions" and a "means for inheriting information previously supplied" as integral parts of the dialog manager as disclosed by Papineni (Col. 3, lines 34-42).

Regarding **claim 2**, Papineni discloses all limitations of **claim 1** as applied above, and further discloses that the reusable subdialog receives context shift data upon being called up by the top level flow controller and returns data to the top level flow controller associated with its interaction with the user (Col. 5, lines 24-28; Col. 5, lines 49-51; Col. 6, lines 10-14).

Regarding **claim 3**, Papineni discloses all limitations of **claim 2** as applied above, and further discloses a plurality of top level flow controllers, each of the plurality of top level flow controllers having at least one reusable subdialog associated with it (Col. 7, lines 13-14; Col. 7, lines 18-25).

It is noted by the examiner that a dialog manager which allows for alternating between operational modes is functionally identical to a plurality of top level flow controllers having mutually-exclusive operations as disclosed by Papineni, and this disclosure can be considered as included within the broadest reasonable interpretation of the claim to one of ordinary skill in the art at the time the invention was made.

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Regarding **claim 6**, Papineni discloses all limitations of **claim 1** as applied above, and further discloses that the top level flow controller supports context shifts (Col. 6, lines 22-24).

Regarding **claim 7**, Papineni discloses all limitations of **claim 6** as applied above, and further discloses that context shifts are triggered by input information from a user and generate a name of a destination state (Col. 5, lines 35-36; Col. 5, lines 47-51; Col. 6, lines 22-24; Col. 6, lines 41-45).

It is noted by the examiner that though Papineni does not explicitly disclose that the context shift will generate the name of a destination state, the broadest reasonable interpretation of this limitation according to one of ordinary skill in the art at the time the invention was made inherently requires this limitation of any system that allows for mixed-initiative context shifts triggered by user information.

Regarding **claim 8**, Papineni discloses all limitations of **claim 1** as applied above, and further discloses that when a top level flow controller invokes a subdialog, the subdialog inherits the context shifts of the top level flow controller (Col. 7, lines 12-14; Col. 7, lines 22-24).

It is noted by the examiner that though Papineni does not explicitly disclose that when a top level flow controller invokes a subdialog, the subdialog inherits the context shifts of the top level flow controller, the broadest reasonable interpretation of this limitation according to one of ordinary skill in the art at the time the invention was made

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inherently requires this limitation of any system that allows for mixed-initiative context shifts triggered by user information.

Regarding **claim 9**, Papineni discloses a method of switching contexts within a spoken dialog between a user and spoken dialog system having a first flow controller and a second flow controller (Col. 7, lines 13-16), comprising:

- while the spoken dialog is being controlled by the first flow controller, receiving context-changing input associated with speech from a user that changes a dialog context (Col. 6, lines 10-14; Col. 6, lines 22-24);
- comparing the context-changing input to at least one context shift (Col. 6, lines 22-24; Col. 7, lines 13-16);
- if any of the context shifts are activated by the comparing step, then passing control to an invoked second flow controller indicated by the context shift (Col. 7, lines 18-25); and
- if no context shift is activated by the comparing step, then maintaining control of the spoken dialog with the first flow controller (Col. 7, lines 18-25).

It is noted by the examiner that silence is disclosed by Papineni to be a known method of context shift (Col. 6, lines 22-24).

It is further noted by the examiner that the broadest reasonable interpretation of context shifting to one of ordinary skill in the art at the time the invention was made would include the system recognizing when a shift in initiative mode is desirable to the user as disclosed by Papineni (Col. 7, lines 13-16).

It is further still noted by the examiner that a limitation including, "if no context shift is activated by the comparing step, then maintaining control of the spoken dialog with the first flow controller," is inherent in the normal operation of the dialog manager as disclosed by Papineni.

Regarding **claim 10**, Papineni discloses all limitations of **claim 9** as applied above, and further discloses that at least one context shift further comprises a table of context shifts (Col. 6, lines 22-24; Col. 7, lines 13-16).

It is noted by the examiner that the broadest reasonable interpretation of "table of context shifts" to one of ordinary skill in the art at the time the invention was made would include a table consisting of a single element, including the known context shift trigger of user silence as disclosed by Papineni (Col. 6, lines 22-24). Papineni further implies a table of context shifts in disclosing that user can address any inactive tasks to initiate a context shift (Col. 6, lines 22-24).

Regarding **claim 11**, Papineni discloses all limitations of **claim 10** as applied above, and further discloses storing a local context associated with each of the first and second flow controllers, the local context maintaining a state of the flow controller that is independent of implemented subdialogs (Col. 7, lines 13-16).

It is noted by the examiner that the broadest reasonable interpretation of "storing a local context associated with each of the first and second flow controllers" to one of

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ordinary skill at the time the invention was made includes the distinction of initiative modes as disclosed by Papineni (Col. 7, lines 13-16).

Regarding **claim 12**, Papineni discloses all limitations of **claim 11** as applied above, and further discloses that the second flow controller receives data values stored in the local context of the first flow controller (Col. 7, lines 22-24).

It is noted by the examiner that the broadest reasonable interpretation of this claim by one of ordinary skill in the art at the time the invention was made would include a system where each flow controller has access to the same data, as disclosed by Papineni (Col. 7, lines 22-24).

Regarding **claim 13**, Papineni discloses all limitations of **claim 9** as applied above, and further discloses maintaining a stack of flow controllers, wherein each invoked flow controller is added to the stack of flow controllers (Col. 10, lines 12-13).

It is noted by the examiner that though Papineni doesn't explicitly teach a stack of flow controllers, it is disclosed that the dialog manager maintains a list of all currently admissible forms (Col. 10, lines 12-13). It is further disclosed that the user is permitted to address any of these forms at any given time (Col. 6, lines 22-24). This disclosure would be included in the broadest reasonable interpretation of "stack of flow controllers" to one of ordinary skill in the art at the time the invention was made.

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Regarding **claim 14**, Papineni discloses all limitations of **claim 13** as applied above, and further discloses that each invoked flow controller inherits a context shift and becomes the recipient of all user input as part of the spoken dialog interaction until the invoked flow controller relinquishes control of the spoken dialog (Co. 7, lines 12-14; Col. , lines 22-24). Papineni further discloses this limitation in describing the operation of the system under the machine-initiative mode (Col. 10, lines 32-42).

Regarding **claim 15**, this claim is very similar to **claim 11** and is rejected for the same reasons.

Regarding **claims 16-22**, these claims are very similar to **claim 9-15** respectively, but include the additional limitations of implementation on a computer readable medium.

Papineni discloses all limitations of **claims 9-15** as applied and further discloses that a preferred embodiment of implementing the method applicable to **claims 9-15** is with a computer readable medium (Col. 7, lines 43-46). Noting this additional limitation, **claims 16-22** are rejected for very similar reasons as **claims 9-15** respectively.

Regarding **claims 23-25** and **28-30**, these claims are very similar to **claims 1-3** and **6-8** respectively and are rejected for the same reasons.

It is noted by the examiner that the only difference between these sets of claims is the use of a "means for managing the process of controlling speech interaction"

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instead of a "top level flow controller." It is further noted by the examiner that a "top level flow controller" would be included in the broadest reasonable interpretation of a "means for managing the process of controlling speech interaction" to one of ordinary skill in the art at the time the invention was made.

8. **Claims 31-35** are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Application 2003/0171925 hereinafter referred to as Werner.

Regarding **claim 31**, Werner teaches a method of switching contexts within a spoken dialog between a user and a spoken dialog system, the spoken dialog system having a dialog manager that manages a stack of dialog modules during a spoken dialog with a user (Page 1, paragraph 0011), the method comprising:

- when a parent dialog module on the top of the stack of dialog modules that is managing the spoken dialog with a user invokes a subdialog module to manage a portion of a spoken dialog with a user, pushing the subdialog onto the top of the stack, wherein the subdialog manages the spoken dialog with the user and wherein the subdialog is isolated from application dependencies (Page 2, paragraph 0019);
- transmitting context shift transition data to the pushed subdialog (Page 7, paragraph 0187);
- if the user changes the context of the dialog while the dialog is being managed by the subdialog:

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- returning a context shift message and a destination state to the parent dialog;
- popping the subdialog off the stack of dialog modules (Page 7, paragraph 0185); and
- returning management of the spoken dialog to the parent dialog (Page 7, paragraph 0185).

Though Werner does not explicitly teach the limitation of returning a context shift message and a destination state to the parent dialog, the broadest reasonable interpretation of this limitation to one of ordinary skill in the art at the time the invention was made is inherent in any system that is capable of context shifting as disclosed by Werner.

Regarding **claim 32**, Werner discloses all limitations of **claim 31** as applied above, and further discloses that the state of the dialog at any moment is determined according to a decision model of the dialog module currently managing the spoken dialog (Page 8, paragraph 0201).

Though Werner does not explicitly teach this limitation, it is inherent in the disclosure of Werner that Go-back behavior is determined by the current object managing the spoken dialog (Page 8, paragraph 0201).

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Regarding **claim 33**, Werner discloses all limitations of **claim 31** as applied above, and further discloses that information is transmitted and received from an invoked subdialog via local memory (Page 5, paragraph 0152).

It is noted by the examiner that the broadest reasonable interpretation of "local memory" to one of ordinary skill in the art at the time the invention was made would include a Read Only Memory in a workstation as disclosed by Werner.

Regarding **claim 34**, Werner discloses all limitations of **claim 31** as applied above, and further discloses that information is transmitted and received from an invoked subdialog via global memory (Page 5, paragraph 0152).

It is noted by the examiner that the broadest reasonable interpretation of "global memory" to one of ordinary skill in the art at the time the invention was made would include a Random Access Memory in a workstation as disclosed by Werner.

Regarding **claim 35**, Werner discloses all limitations of **claim 31** as applied above, and further discloses that if the user changes the context of the dialog while the dialog is being managed by the subdialog, the method further comprises popping all subdialogs off the stack and returning control of the spoken dialog to the parent dialog module (Page 9, paragraph 0207).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 4 and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Papineni in view of US Patent 5,699,456 hereinafter referred to as Brown.

Regarding **claim 4**, Papineni discloses all limitations of **claim 3** as applied above, but does not adequately disclose that the top level flow controller is a recursive transition network flow controller.

Brown discloses the use of recursive transition network controllers in a speech recognition system (Fig. 5; Col. 7, lines 21-29).

The two references are combinable because each teaches an invention relating to speech recognition control. Brown further provides motivation to combine in disclosing the usefulness of recursive transition networks in reducing the necessary size of speech recognition grammars (Col. 7, lines 21-29; Col. 7, lines 35-39). This is inherently practical in reducing data storage requirements.

Therefore, the examiner contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Papineni with the teachings of Brown in order to implement a spoken dialog

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management system with a smaller minimum grammar size for the purpose of reducing data storage requirements.

Regarding **claim 26**, Papineni discloses all limitations of **claim 25** as applied above, but does not adequately disclose that the top level flow controller is a recursive transition network flow controller.

Brown discloses the use of recursive transition network controllers in a speech recognition system (Fig. 5; Col. 7, lines 21-29).

10. **Claims 5 and 27** rejected under 35 U.S.C. 103(a) as being unpatentable over Papineni in view of US Patent 6,044,347 hereinafter referred to as Abella.

Regarding **claim 5**, Papineni discloses all limitations of **claim 3** as applied above, but does not adequately disclose that the top level flow controller is a rule-based model.

Abella discloses the use of a rule-based flow controller (Col. 3, lines 49-50).

The two references are combinable because each teaches an invention relating to speech recognition control. Abella further provides motivation in disclosing the usefulness of variety with regards to modes of operation (Col. 3, lines 49-53).

Therefore, the examiner contends that it would be obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Papineni using the teachings

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of Abella to implement a spoken dialog system that has an increased variety with regards to modes of operation.

Regarding **claim 27**, Papineni discloses all limitations of **claim 25** as applied above, but does not adequately disclose that the top level flow controller is a rule-based model.

Abella discloses the use of a rule-based flow controller (Col. 3, lines 49-50).

11. **Claims 9-15** rejected under 35 U.S.C. 103(a) as being unpatentable over Papineni.

Regarding **claim 9**, Papineni discloses a method of switching contexts within a spoken dialog between a user and spoken dialog system comprising:

- while the spoken dialog is being controlled by a first flow controller, receiving context-changing input associated with speech from a user that changes a dialog context (Col. 6, lines 10-14; Col. 6, lines 22-24);
- comparing the context-changing input to at least one context shift (Col. 6, lines 22-24; Col. 7, lines 13-16);
- if any of the context shifts are activated by the comparing step, then passing control to an invoked second flow controller indicated by the context shift (Col. 7, lines 18-25); and

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- if no context shift is activated by the comparing step, then maintaining control of the spoken dialog with the first flow controller (Col. 7, lines 18-25).

It is noted by the examiner that silence is disclosed by Papineni to be a known method of context shift (Col. 6, lines 22-24).

It is further noted by the examiner that the broadest reasonable interpretation of context shifting to one of ordinary skill in the art at the time the invention was made would include the system recognizing when a shift in initiative mode is desirable to the user as disclosed by Papineni (Col. 7, lines 13-16).

It is further still noted by the examiner that though Papineni does not explicitly disclose the system having a first flow controller and a second flow controller, a single flow controller having two mutually exclusive modes of operation is disclosed (Col. 7, lines 13-16). The mutually exclusive modes of operation include a mixed-initiative and machine-initiative mode.

Papineni further discloses the behaviors of a flow controller capable of mixed-initiative operation (Col. 6, lines 22-24).

Papineni further still discloses the behaviors of a flow controller capable of machine-initiative operation (Col. 10, lines 37-42).

It would be within the technical grasp of one of ordinary skill in the art, based on the disclosure of Papineni, to attempt to implement a dialog system that is functionally equivalent to that disclosed by Papineni using two separate flow controllers having mutually-exclusive operation, wherein each flow controller is capable of directing

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interaction or allowing the other controller to direct the action as necessary, and each flow controller further has access to the same data.

Therefore, the examiner contends that it would be obvious for one of ordinary skill in the art at the time the invention was made to try to implement the teachings of Papineni using two separate flow controllers.

Regarding **claims 10-15**, these claims are further rejected for the same reasons applied to **claims 10-15** under 35 USC 102(b).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


- Abella et al. (US Patent 6,044,347) teaches a method and apparatus for rule-based dialog management.
- Kanevsky et al. (US Patent 6,236,968) teaches a dialog interaction system for a car.
- Wang et al. (US Patent 6,505,162) teaches an apparatus and method for dialogue management.
- Comerford et al. (US Patent 6,513,009) teaches a low resource dialog system.
- Kanevsky et al. (US Patent 6,587,818) teaches a system and method of resolving dialog ambiguity.

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- Yano et al. (US Patent 6,466,899) teaches a natural language dialog apparatus and method.
- Strubbe et al. (US Patent 6,728,679) teaches a dialog system with self-updating capabilities.
- Gupta et al. (US Patent 7,197,460) teaches a voice dialog system for answer frequently asked questions.
- Sravanapudi et al. (US Patent Application 2001/0049603) teaches a system for multimodal information services.
- Walker et al. (US Patent Application 2002/001370) teaches a system for providing voice applications via phone.
- Guerra (US Patent Application 2002/0173961) teaches a system and method for robust audio output in a speech recognition system.
- Ehlen et al. (US Patent Application 2004/0006475) teaches a system and method for generating context-sensitive help dialogs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Kovacek whose telephone number is (571) 270-3135. The examiner can normally be reached on M-F 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on (571) 272-7687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


ALEXANDER EISEN
PRIMARY EXAMINER
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